

1. An apparatus for handling arrayed components, comprising:
  - a component receiving section for receiving and holding a supporting body which supports components arrayed in two orthogonal directions;
  - a receiving section rotating device for rotating the component receiving section about an approximately central position of the received supporting body, and for positioning each unit region of a plurality of regions set by dividing a component supporting region of the supporting body about the approximately central position of the supporting body into the regions at a pickup standby position about the approximately central position of the supporting body in a switching manner; and
  - a two-direction moving device that moves the component receiving section in the two component array directions and moves the components in a unit region positioned at the pickup standby position on the supporting body to the pickup position in sequence for making the components subjected to pickup operation by a component handling tool.
2. An apparatus for handling arrayed components as defined in claim 1, further comprising a component transfer device for picking up the component moved to the pickup position with use of the component handling tool and transferring the same to other places.
3. An apparatus for handling arrayed components as defined in claim 1, further comprising:
  - a component housing section which makes it possible to handle the component in a packing style as being received in a component housing member for next-step handling; and
  - a component transfer device for picking up the component positioned at the pickup position with use of the component

handling tool and transferring the same to the component housing member in the component housing section.

4. An apparatus for handling arrayed components as defined in claim 1, further comprising:

an identifying device for imaging the component at the pickup position and performing image recognition;

a reference position switching device for switching reference of position recognition by the identifying device after a unit region at the pickup standby position is switched with rotation of the supporting body by the receiving section rotating device.

5. An apparatus for handling arrayed components as defined in claim 3, comprising:

a tool rotating device for rotating the component handling tool about a center of the component to be picked up thereby; and

a control unit for controlling the tool rotating device so as to correct a direction of the component picked up by the component handling tool through rotation of the component handling tool by the tool rotating device after a unit region located at the pickup standby position is switched with rotation of the supporting body by the receiving section rotating device.

6. An apparatus for housing arrayed components as defined in claim 4, comprising a control unit for controlling operation of the component housing section and the component handling tool so that the component housing section can provide a plurality of component housing members side by side, and a plurality of the component housing members are separately used properly depending on a type of the component picked up by the component handling tool and

identified by the identifying device for transfer and housing operation.

7. An apparatus for handling arrayed components as defined in claim 6, wherein the type of the component is quality rank defined by electric characteristics and frequency characteristics of each component.

8. An apparatus for handling arrayed components as defined in claim 7, wherein one of the types of the components is a defective product, and the control unit controls operation of the component handling tool so that the component handling tool disposes a component identified by the identifying device as a defective product in a disposal section.

9. An apparatus for handling arrayed components as defined in claim 3, wherein the component housing member is a tape member.

10. An apparatus for handling arrayed components as defined in claim 1, wherein the unit region is a quarter region divided at an angle of 90 degrees.

11. An apparatus for handling arrayed components as defined in claim 1, wherein the unit region is a half region divided at an angle of 180 degree.

12. An apparatus for handling arrayed components as defined in claim 2, further comprising a component housing section disposed at a position to be laid over a top of the component receiving section,

wherein the component transfer device picks up the component and transfers the same to the component housing section whenever the component is moved to the pickup position.

13. An apparatus for handling arrayed components as defined in claim 12,

wherein the component housing section is disposed in a plurality of rows at a position to be laid over the top of the component receiving section, and

the component transfer device picks up the component and transfers the same to each component housing section whenever the component is moved to the pickup position.

14. An apparatus for handling arrayed components as defined in claim 12, further comprising a front-back inverting device disposed between the transfer device and the component housing section, for selectively performing operation of receiving the component from the transfer device, inverting front side and back side of the component, and housing the component in the component housing section.

15. An apparatus for handling arrayed components as defined in claim 13, further comprising a second component transfer device for receiving the component from the transfer device and separately transferring the component to the component housing section provided in a plurality of rows.

16. An apparatus for handling arrayed components as defined in claim 13, further comprising a front-back inverting device for receiving the component from the component transfer device, moving to the component housing section provided in a plurality of rows,

and separately transferring the component with front side and back side thereof inverted to each component housing section.

17. An apparatus for handling arrayed components as defined in claim 13, wherein a concave section of each component housing section disposed in a plurality of the rows is moved to a transfer target position on the component receiving section, and the component is transferred to the concave section of the component housing section moved to the transfer target position by the component transfer device.

18. An apparatus for handling arrayed components as defined in claim 13, wherein based on data identifying respective division of each component arrayed on the supporting body, each component of respective division is transferred to a plurality of the component housing sections disposed by division of each component.

19. An apparatus for handling arrayed components as defined in claim 2, the components being a plurality of semiconductor elements separated from a semiconductor wafer by dicing, further comprising:

    a component feeding section for housing a supporting body that supports the component in a state of being arrayed in the two orthogonal directions and feeding the same to a feeding position;

    a taping packaging section for housing the semiconductor elements in array in an extending direction of the tape member and performing taping packaging; and

    a front-back inverting device disposed between the component transfer device and the taping packaging section, for selectively performing operation of receiving the semiconductor element from the component transfer device, inverting front side and back side of the semiconductor element, and housing the component in the taping packaging section,

wherein the component receiving section receives and holds the supporting body extracted from the component feeding section,

the two-direction moving device moves the component receiving section in the two component array directions for moving the semiconductor element in sequence to a pickup position, and

the component transfer device picks up the semiconductor element and transfers the same in sequence to the taping packaging section whenever the semiconductor element is moved to the pickup position.

20. An apparatus for handling arrayed components as defined in claim 19, wherein the taping packaging section is disposed at a position to be laid over a top of the component receiving section.

21. An apparatus for handling arrayed components as defined in claim 19, wherein based on data identifying each semiconductor element disposed in array on the semiconductor wafer by quality rank defined by electric characteristics and frequency characteristics of each semiconductor element, each semiconductor element of respective quality rank is transferred to a plurality of taping packaging sections disposed by quality rank.

22. An apparatus for handling arrayed components as defined in claim 2, further comprising:

a component housing section which makes it possible to handle the component in a packing style as being received in a component housing member for next-step handling; and

a component transfer device for picking up the component positioned at the pickup position with use of the component handling tool and transferring the same to the component housing member in the component housing section.

23. An apparatus for handling arrayed components as defined in claim 2, further comprising:

an identifying device for imaging the component at the pickup position and performing image recognition;

a reference position switching device for switching reference of position recognition by the identifying device after a unit region at the pickup standby position is switched with rotation of the supporting body by the receiving section rotating device.

24. An apparatus for handling arrayed components as defined in claim 3, further comprising:

an identifying device for imaging the component at the pickup position and performing image recognition;

a reference position switching device for switching reference of position recognition by the identifying device after a unit region at the pickup standby position is switched with rotation of the supporting body by the receiving section rotating device.

25. An apparatus for handling arrayed components as defined in claim 4, comprising:

a tool rotating device for rotating the component handling tool about a center of the component to be picked up thereby; and

a control unit for controlling the tool rotating device so as to correct a direction of the component picked up by the component handling tool through rotation of the component handling tool by the tool rotating device after a unit region located at the pickup standby position is switched with rotation of the supporting body by the receiving section rotating device.

26. An apparatus for handling arrayed components as defined in claim 13, further comprising a front-back inverting device disposed between the transfer device and the component housing section, for selectively performing operation of receiving the component from the transfer device, inverting front side and back side of the component, and housing the component in the component housing section.

27. An apparatus for handling arrayed components as defined in claim 20, wherein based on data identifying each semiconductor element disposed in array on the semiconductor wafer by quality rank defined by electric characteristics and frequency characteristics of each semiconductor element, each semiconductor element of respective quality rank is transferred to a plurality of taping packaging sections disposed by quality rank.